

Claims

- [c1] 1. An electrical safety device, used in combination with an electrical enclosure and a proximity probe, comprising:
- a non-conductive body mounted to said electrical enclosure;
 - said non-conductive body having a front, a mounting body and a rear;
 - at least any exposed parts of said non-conductive body from outside said enclosure being made of a non-conductive material;
 - said non-conductive body mounted such that said front of said non-conductive body is exposed to an outside of said enclosure so that said probe has access to said front of said non-conductive body;
 - said mounting body of said non-conductive body configured to secure said non-conductive body to said enclosure;
 - said rear of said non-conductive body positioned such that said rear of said non-conductive body is protected by said enclosure;
 - at least one conducting wire leading from a voltage source and entering into said rear of said non-conductive body;

said wire having an exposed section within said non-conductive body near said front of said non-conductive body;

said exposed section of said wire being a depth from an outside face of said front of said non-conductive body, whereby said depth is enough to prevent passing of electrical current, yet close enough to allow said probe to be activated when electrical current is present in said wire.

[c2] 2.The electrical safety device of claim 1, further including a wire terminal within said non-conductive body near said front of said non-conductive body to receive said exposed section of wire.

[c3] 3.The electrical safety device of claim 1, wherein said exposed front of said non-conductive body includes at least one cavity acting as a guide to said probe.

[c4] 4.The electrical safety device of claim 1, further including electrical shielding within said non-conductive body to shield said wire.

[c5] 5.The electrical safety device of claim 1, wherein said wire is an electrically shielded wire.

[c6] 6. The electrical safety device of claim 1, further including:

at least one open cavity in said front of said non-conductive body to receive the probe, said at least one open cavity accessible from outside said electrical enclosure, said at least one open cavity including sides and bottom, said sides and bottom being made of said non-conductive material and defining said cavity; and at least one wire terminal in said rear of said non-conductive body to receive said wire, said at least one wire terminal positioned behind said bottom of said at least one open cavity, whereby said bottom is a layer of non-conductive material.

[c7] 7.The electrical safety device of claim 6, wherein said non-conductive body is mounted within said electrical enclosure and wherein said electrical enclosure includes a test hole on an outside surface of said electrical enclosure which is aligned with said at least one open cavity to allow the probe to pass through said electrical enclosure and into said at least one open cavity.

[c8] 8.The electrical safety device of claim 6, wherein said non-conductive body is mounted on an outside surface of said electrical enclosure and wherein said non-conductive body is configured such that at least one wire from said electrical enclosure passes through said outside surface in a protected manner and is connected to said at least one wire terminal.

- [c9] 9.The electrical safety device of claim 6, wherein there is a plurality of wire terminals in said rear of said non-conductive body to receive a plurality of wires and wherein said plurality of wire terminals are positioned behind said bottom of said at least one open cavity.
- [c10] 10.The electrical safety device of claim 9, wherein at least one of said wires is a ground wire connected to one of said wire terminals that is positioned between two non-grounded wires to act as a shield to prevent bleed over of a voltage field to the probe when the probe is placed in said at least one open cavity.
- [c11] 11.The electrical safety device of claim 7, wherein there is a plurality of wire terminals in said rear of said non-conductive body to receive a plurality of wires; wherein said plurality of wire terminals are positioned behind said bottom of said at least one open cavity; and wherein at least one of said wires is a ground wire connected to one of said wire terminals that is positioned between two non-grounded wires to act as a shield to prevent bleed over of a voltage field to the probe.
- [c12] 12.The electrical safety device of claim 8, wherein there is a plurality of wire terminals in said rear of said non-conductive body to receive a plurality of wires; wherein

said plurality of wire terminals are positioned behind said bottom of said at least one open cavity; and wherein at least one of said wires is a ground wire connected to one of said wire terminals that is positioned between two non-grounded wires to act as a shield to prevent bleed over of a voltage field to the probe.

[c13] 13.The electrical safety device of claim 7, wherein said front of said non-conductive body is against an inside surface of said electrical enclosure.

[c14] 14.The electrical safety device of claim 6, wherein there is a plurality of open cavities in said front of said non-conductive body to receive the probe, said open cavities each accessible from outside said electrical enclosure, said open cavities each including sides and bottom, said sides and bottom being made of said non-conductive material; and wherein there is a wire terminal for each of said open cavities positioned in said rear of said non-conductive body behind said bottom of each of said open cavities.

[c15] 15.The electrical safety device of claim 14, further including a ground shield plate mounted to said front of said non-conductive body; wherein said ground shield plate includes a probe hole for each of said open cavities to allow the probe to pass through to said open cavities;

and wherein said ground shield plate is grounded.

[c16] 16.The electrical safety device of claim 15, further including a ground spoke plate between each wire terminal that is positioned inside said non-conductive body; and wherein said ground spokes are grounded.

[c17] 17.The electrical safety device of claim 14, wherein said wire terminals are button connectors to which said wires are connected.

[c18] 18.The electrical safety device of claim 14, wherein said non-conductive body is mounted to an outside surface of said electrical enclosure; wherein said electrical enclosure includes a mounting hole for mounting of said non-conductive body; wherein said non-conductive body includes a threaded rear portion acting as part of said mounting body which fits through said mounting hole from outside said electrical enclosure; further including a lip between said front and said threaded rear portion of said non-conductive body which prevents a front portion of said non-conductive body from passing through said mounting hole; and further including a lock nut which screws onto said threaded rear portion and against an inside surface of said electrical enclosure to secure said non-conductive body to said electrical enclosure.

[c19] 19. The electrical safety device of claim 15, wherein said non-conductive body includes an outer shell and an inner core; wherein said outer shell includes a ground shield cavity to receive said ground shield plate; wherein said open cavities are within said ground shield cavity; wherein said outer shell includes an inner core cavity in a rear of said outer shell to receive said inner core; wherein said inner core includes wire terminal cavities to receive said wire terminals such that said wire terminals are behind said bottoms of said open cavities and further including a plurality of ground spoke plates in said inner core that are grounded, whereby there is one of said ground spoke plates between each wire terminal.

[c20] 20. The electrical safety device of claim 17, further including a ground shield plate mounted to said front of said non-conductive body; wherein said ground shield plate includes a probe hole for each of said open cavities to allow the probe to pass through to said open cavities; and wherein said ground shield plate is grounded.

[c21] 21. The electrical safety device of claim 20, further including a ground spoke plate between each wire terminal that is positioned inside said non-conductive body; and wherein said ground spokes are grounded.

[c22] 22. The electrical safety device of claim 18, further in-

cluding a ground shield plate mounted to said front of said non-conductive body; wherein said ground shield plate includes a probe hole for each of said open cavities to allow the probe to pass through to said open cavities; and wherein said ground shield plate is grounded.

[c23] 23.The electrical safety device of claim 22, further including a ground spoke plate between each wire terminal that is positioned inside said non-conductive body; and wherein said ground spokes are grounded.

[c24] 24.The electrical safety device of claim 22, wherein said non-conductive body includes an outer shell and an inner core; wherein said outer shell includes a ground shield cavity to receive said ground shield plate; wherein said open cavities are within said ground shield cavity; wherein said outer shell includes an inner core cavity in a rear of said outer shell to receive said inner core; wherein said rear threaded portion is part of said outer shell; wherein said inner core includes wire terminal cavities to receive said wire terminals such that said wire terminals are behind said bottoms of said open cavities and further including a plurality of ground spoke plates in said inner core that are grounded, whereby there is one of said ground spoke plates between each wire terminal.

[c25] 25. The electrical safety device of claim 24, wherein said wire terminals are button connectors to which said wires are connected, said button connectors fitting into said wire terminal cavities.